

Kerala shows the way in integrating RE to grid

Rishi Ranjan Kala
New Delhi

Even as the Centre attempts to enhance the use of battery energy storage systems (BESS) for better utilisation of renewable energy, Kerala is setting the pace through targeted policy intervention for more effective and efficient grid management.

The renewable energy (RE) systems of solar and wind are highly material-intensive and depend on capital-intensive energy storage technologies for integration into the grid.

Material intensity and storage requirements constitute the two key roadblocks to wider utilisation of these sources, the Economic Survey for FY26 pointed out.

MANDATORY NORMS

To enable effective grid integration, the Kerala State Electricity Board (KSEB) has mandated battery storage capacities for new grid-connected households, as well as industrial and agricultural solar plants, the Survey noted.

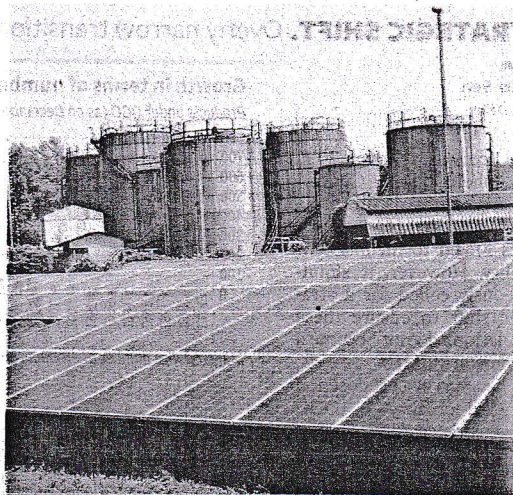
For instance, rooftop solar systems above 10 kilowatt (kW) will need battery storage equivalent to 10 per cent of installed capacity, while those between 15 and 20 kW must install 20 per cent storage capacity.

From 2027, even smaller 5 kW systems will be required to add storage capacity.

Battery capacities in solar plants are expected to address the intermittency challenge associated with solar power.

TARIFF INCENTIVES

An additional incentive to boost the adoption of battery storage alongside solar power is being offered through a gross metering mechanism, which provides higher tariffs to customers



EFFECTIVE PLANNING. The Kerala State Electricity Board now requires new connected households, as well as industrial and agricultural solar plants, to install battery storage capacities

who install battery storage, it added. The rationale behind the policy intervention is that, given the intermittent nature of solar energy, optimal utilisation lies in consuming power generated during the day while storing excess electricity or exporting it to the grid.

However, as batteries remain expensive, exporting power to the grid continues to be a practical option, with the discom or power utility effectively serving as a back-up.

CENTRAL POLICY PUSH

The Centre has formally recognised energy storage systems under the Electricity Rules as an integral component of the power system and included them in the Harmonised Master List of Infrastructure, improving access to long-tenure, lower-cost financing.

Storage has also been embedded in the Resource Adequacy Planning Guidelines and supported through a National Framework for the Promotion of Energy Stor-

age Systems.

The Central Electricity Authority (CEA) has estimated that India will require around 336 gigawatt-hour (GWh) of energy storage capacity by FY30 and 411 GW by FY32 to support the reliable integration of renewable energy sources.

To enable this scale-up, a coordinated set of policy, regulatory, demand-side and supply-side measures is being rolled out.

FUNDING SUPPORT

To accelerate deployment, the government has launched two viability gap funding schemes, supporting around 43 GWh of BESS capacity (in March 2024 and June 2025).

Further, manufacturing is being supported through ₹18,100 crore PLI scheme for 50 GWh of Advanced Chemistry Cell capacity, of which 10 GWh is earmarked for grid-scale storage. For pumped storage project grant-based support is being provided to enable infrastructure development.